

IN THE CLAIMS

1 - 17 (Canceled)

18. (Previously Presented) A prosthesis for replacing a surface of a ball of a ball-and-socket joint comprising:

a spherical shell section having an outer surface that is configured to lie in an articular fossa and for attachment to a surface, the shell section having a cavity for receiving a bone end; and

a crown that partitions the cavity of the shell section into first and second cavities adapted to receive the bone end;

wherein the shell section comprises less than a hemisphere and a free edge of the crown lies in the same plane as a free edge of the shell section.

19. (Previously Presented) The prosthesis of claim 18, wherein the spherical shell section has a height h that is about 65% to 90% of a radius of the ball.

20. (Previously Presented) The prosthesis of claim 19, wherein the spherical shell section has a height h that is about 70% to 85% of the radius of the ball.

21. (Previously Presented) The prosthesis of claim 19, wherein the spherical shell section has a height h that is about 80% of the radius of the ball.

22. (Previously Presented) The prosthesis of claim 18, wherein the first cavity has a circular shape and the second cavity has an annular shape.

23. (Previously Presented) The prosthesis of claim 18, wherein an innermost end of the crown is integrally connected to an inner surface of the shell section so as to form a single integral structure.
24. (Previously Presented) The prosthesis of claim 18, wherein at least one of an inner surface of the shell section and a surface of the crown is configured for contact with the bone end and is therefore a roughened surface.
25. (Previously Presented) The prosthesis of claim 18, wherein the crown has at least one opening formed therein to provide communication between the first and second cavities.
26. (Previously Presented) The prosthesis of claim 25, wherein the at least one opening comprises at least five openings.
27. (Previously Presented) The prosthesis of claim 18, wherein at least one of an inner surface and an outer surface of the crown has a relief structure formed as a part thereof.
28. (Previously Presented) The prosthesis of claim 27, wherein the relief structure comprises a fluting that is formed by ring beads that extend circumferentially around the crown.
29. (Previously Presented) The prosthesis of claim 18, wherein the inner surface of the shell section includes a relief structure that extends along an edge of the shell section.
30. (Previously Presented) The prosthesis of claim 29, wherein the relief structure comprises fluting formed circumferentially around the inner surface of the shell section.
31. (Previously Presented) The prosthesis of claim 18, wherein the crown and shell section are separate parts and are constructed to be securely coupled to one another.

32. (Previously Presented) The prosthesis of claim 31, wherein the crown and shell section are constructed to be threadingly coupled to one another by means of threads formed on at least one of an outer surface of the crown and an inner surface of the shell section.
33. (Previously Presented) The prosthesis of claim 18, wherein the crown has a shape selected from the group consisting of a circle and a polygon.
34. (Previously Presented) The prosthesis of claim 18, wherein the crown is arrayed in a coaxial manner.
35. (Previously Presented) The prosthesis of claim 18, wherein the crown and shell section are individual parts and are connected to one another by a mechanical fit selected from the group consisting of screw threading, a bayonet joint and a clamping device.
36. (Previously Presented) A prosthesis for replacing a surface in a ball of a ball-and-socket joint comprising:
- a spherical shell section having an outer surface configured to lie in an articular fossa and for attachment to a surface, the shell section having a cavity for receiving a bone end; and
 - a crown that partitions the cavity of the shell section into a first cavity and a second cavity, the first and the second cavities being adapted to receive portions of the bone end;
 - wherein the shell section comprises less than a hemisphere and a free edge of the crown does not intersect a plane in which a free edge of the shell section lies.
- 37 - 39. (Canceled)

40. (Currently Amended) The prosthesis of claim 36 [[39]], wherein the free edge of the crown is up to about 5 mm from the plane containing the free edge of the shell section.

41. (Previously Presented) A procedure for implantation of a prosthesis in a bone comprising the steps of:

preparing the bone and forming a groove in the bone;

providing a prosthesis for replacing a surface in an area of a ball of a ball-and-socket joint, the prosthesis including a spherical shell section and a crown, the shell section having an outer surface configured to lie in an articular fossa and for attachment to a surface, the shell section having a cavity for receiving a bone end, the crown partitioning the cavity of the shell section into a first cavity and a second cavity, wherein the shell section comprises less than a hemisphere and a free edge of the crown lies in the same plane as a free edge of the shell section; and

inserting the prosthesis onto the bone such that the crown is received in the groove formed in the bone.

42. (Previously Presented) A set of prostheses comprising:

a plurality of prostheses according to claim 18, wherein the shell sections are formed having diameters that differ from one another and wherein a ratio of a height (h) of the shell section to a respective ball diameter is equal for each prosthesis and wherein a diameter of each crown amounts to the same percentage of a diameter of the spherical shell section for each prosthesis.